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# CVN 21 Class Technology Management to Meet the Desired Operational Capability

Brief for Small Business Innovative Research (SBIR) Breakfast

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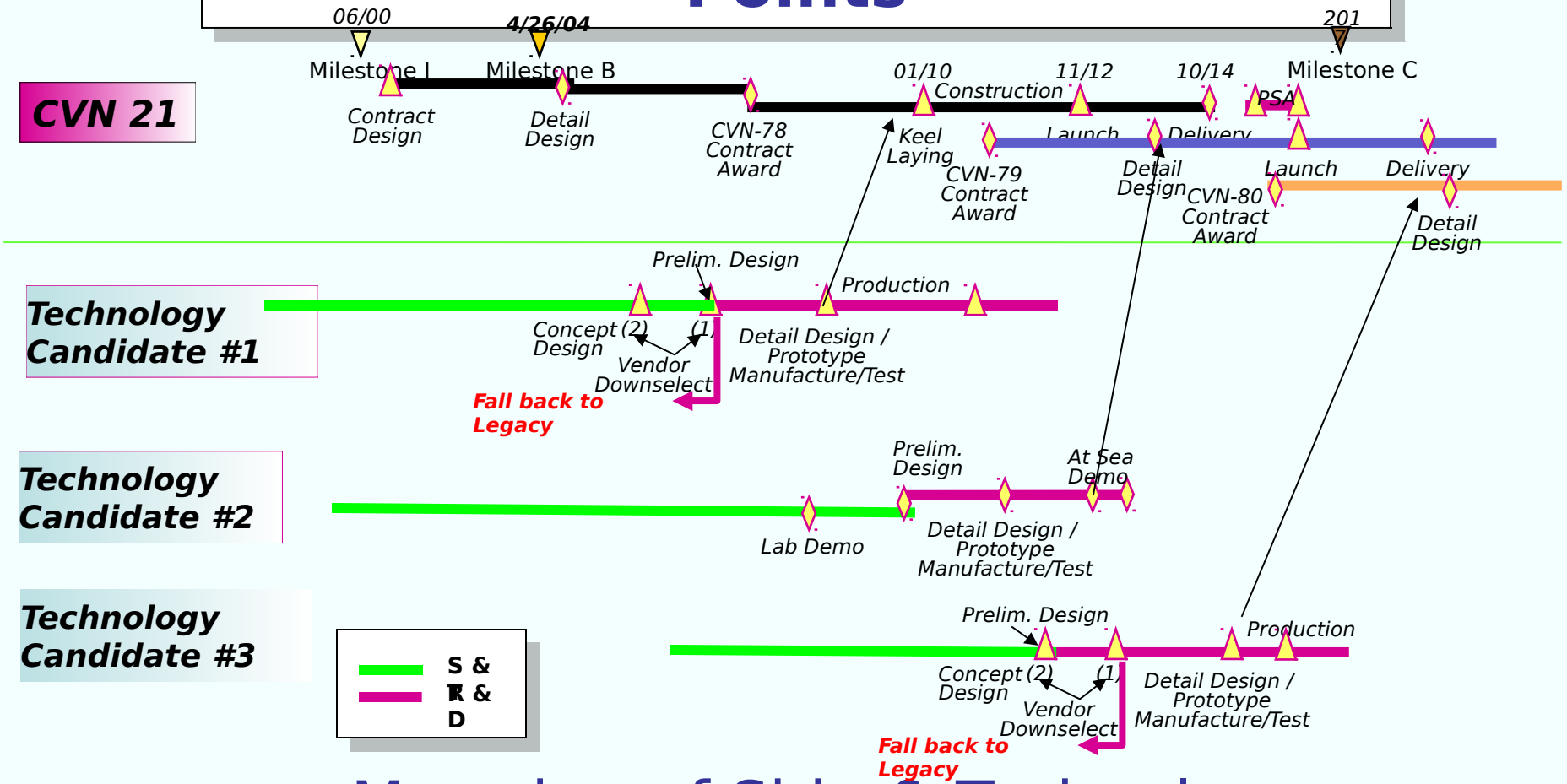
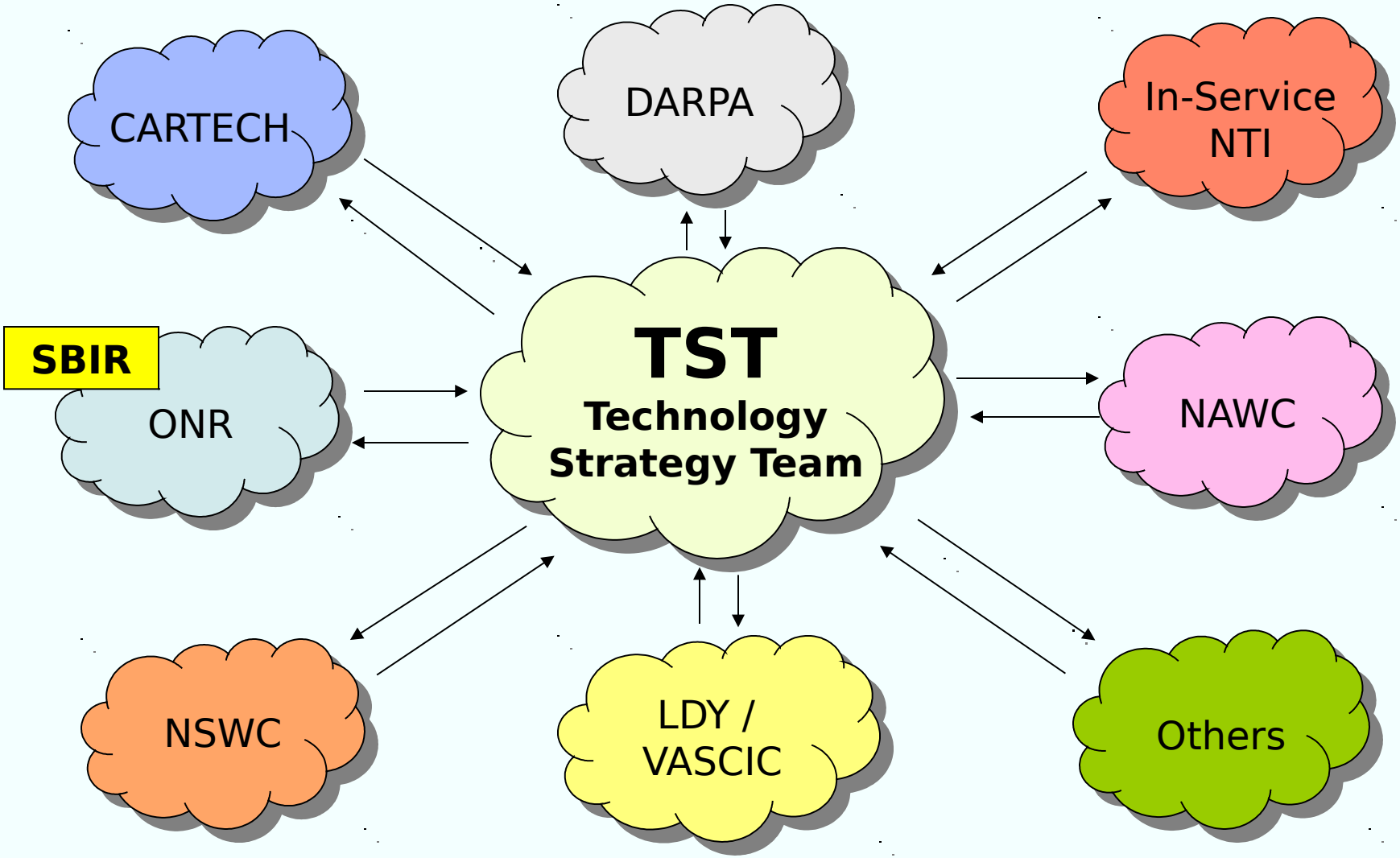
# Technology Insertion Decision Points

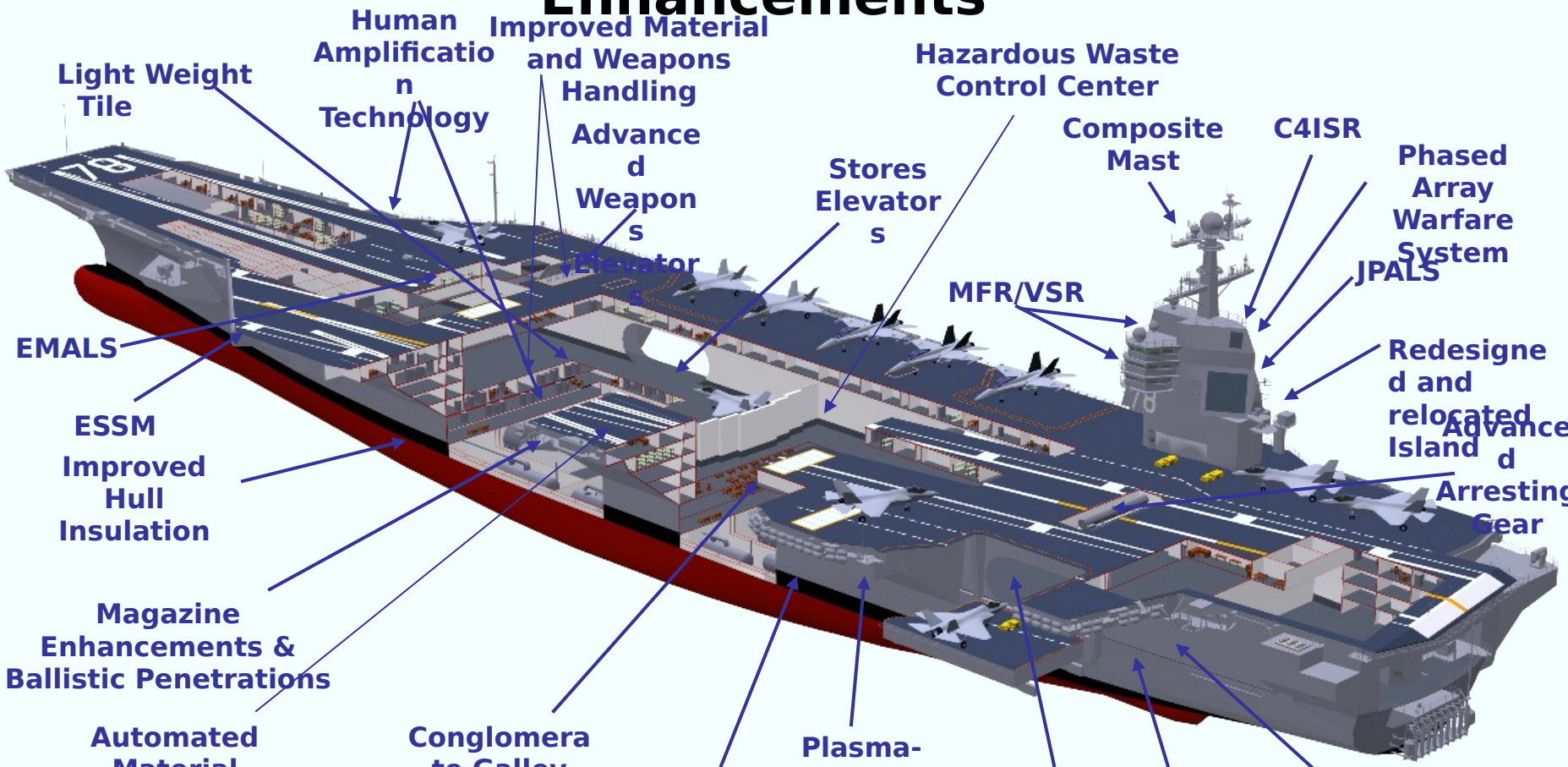



## Marrying of Ship & Technology Schedules

# Potential Technology Sources



# CVN 78 Concept Technologies & Enhancements



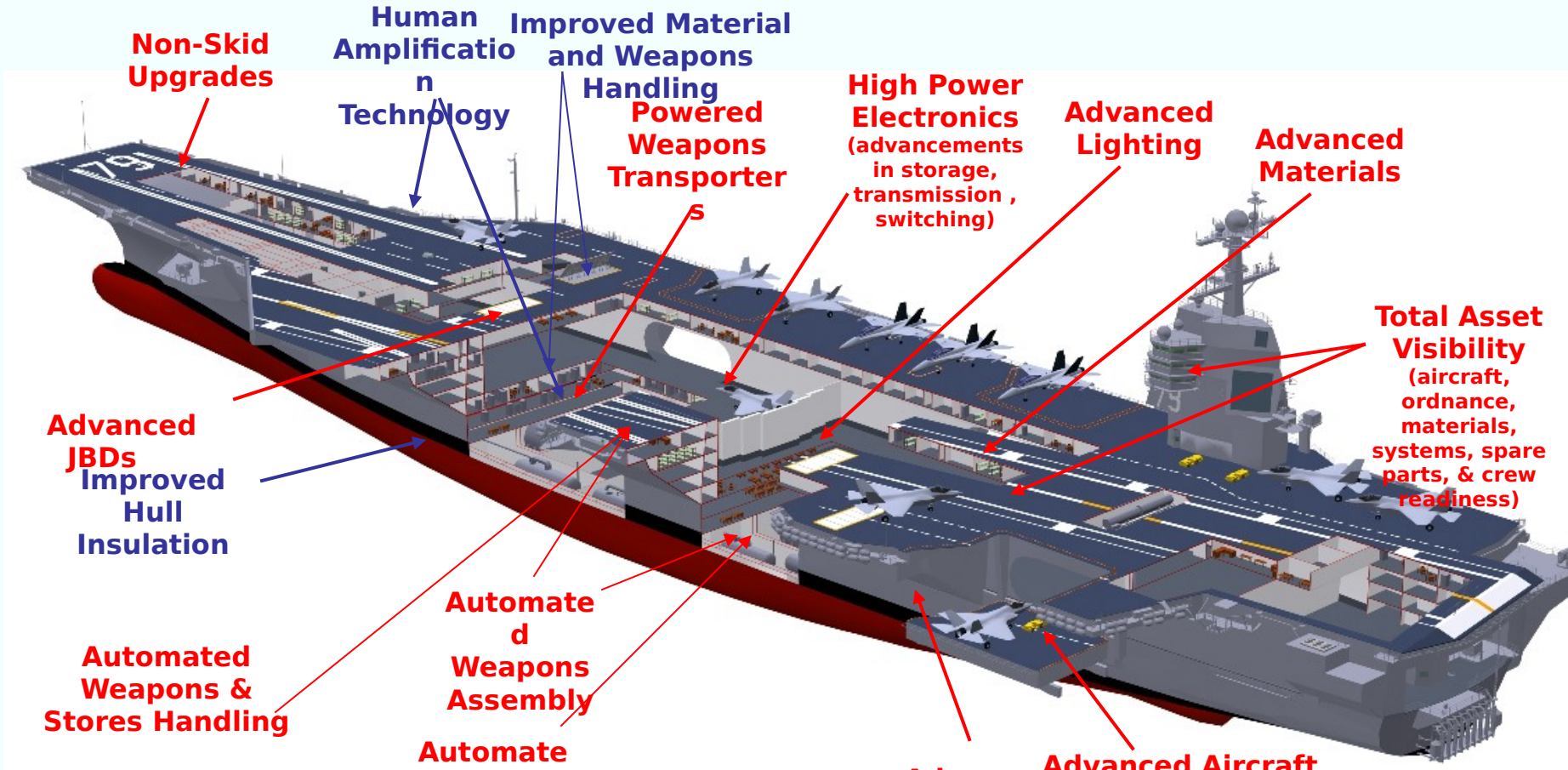
# CVN 78 Technology Opportunities

- High Efficiency Lighting
- Permanent Magnet Motors
- Automated Closures
- Voice Interactive Displays
- Lightweight Doors
- Lightweight Low Cost Joiner and Structural Bulkheads
- Composite Safety Nets, Catwalks, Life Raft Racks
- Thermal Acoustic Refrigeration
- RFID Technology
- Automated Inventory Management
- Storage and Retrieval

# CVN 78 Technology Opportunities

- Hazardous Material Processing Improvements
- Powered Weapons Transporting Equipment
- Heat Pipes
- Modular Furniture
- Modular Berthing and Heads
- Composite Watertight Doors and Hatches
- Fuel Cells for Un-interruptible Power Equipment
- Aluminum / lightweight Structures
- Modularity Concepts
- Passive Jet Blast Deflector (JBD)

# CVN 79 Concept Technologies & Enhancements


Non-Skid Upgrades
Human Amplification Technology
Improved Material and Weapons Handling
Powered Weapons Transporters
High Power Electronics (advancements in storage, transmission , switching)
Advanced Lighting
Advanced Materials
Total Asset Visibility (aircraft, ordnance, materials, systems, spare parts, & crew readiness)
Advanced JBDs
Improved Hull Insulation
Automated Weapons & Stores Handling
Automated Weapons Assembly
Automated Weapons Inspectio
Advanced Cooling
Advanced Aircraft Elevator Drive System

# Follow Ships Focus Areas - Needs

- KPP – Manpower
- KPP – Sortie Generation Rates
- KPP – Weight Service Life Allowance
- KPP – KG Service Life Allowance
- Total Ownership Cost (TOC)
- Survivability
  - Signatures, Protection Systems, Recoverability
  - Airborne Noise Levels
- Sustainability
  - Ordnance & Stores Endurance
- Supportability
  - Total Integrated Logistic System, UNREP rate, Strike-down rate, RMA

**Pushing to Meet Objectives**

# Follow Ships Technology Opportunities

- **Energy**
  - **Advanced electrical supply & load monitoring w/ automated reconfiguration capability**
  - **Direct thermal to electric energy conversion**
  - **Fuel cells**
  - **High power electronics (HPE)**
  - **High density capacitors**
  - **High density energy transmission media**
  - **High speed, high energy solid state switching**
- **TOC**
  - **Condition based maintenance**
  - **Non-Skid**
  - **Coatings**
- **Materials – lightweight, maintainable, higher temperature, acoustics, etc.**

# Follow Ships Technology Opportunities

- **Wireless Communication**
- **Aviation**
  - **Universal Flight Deck Spotting Dolly**
  - **Synthetic Arresting Gear Wire**
- **Logistics**
  - **Automated inventory management**
  - **Automated Information & Data Collection – RFID, smart buttons, etc.**
  - **Automated storage & retrieval, handling of ordnance & materials**
- **Modularity & Flexibility**
  - **Smart deck / bulkhead**
  - **Mission modules: Aviation, C4I / Warfare System**